



## Herbicides in compost

September 2010

### Whatcom County: Herbicides in animal manure, compost raise concerns for growers and gardeners

#### Background

Since mid-June, the Washington State Department of Agriculture (WSDA) Pesticide Management Division has opened several investigations related to herbicide damage to organic, small farms and vegetable gardens in Whatcom County. Plant samples analyzed at WSDA's chemical lab in Yakima show extremely low levels of herbicides (including aminopyralid and clopyralid) present in plants, dairy manure and dairy manure compost. This fact sheet provides information from WSDA, Washington State University Extension, the state Department of Ecology and presents several websites on herbicide and compost issues.

#### What is the problem with the compost and what type of damage has been reported?

Sensitive, non-target plants may show cupped leaves, twisted stems, distorted growing points and reduced fruit set. Sensitive plants include: tomatoes, peppers, potatoes, beans, peas, sunflowers, eggplant, and similar species. Additional photographs of herbicide damage are posted on the WSU Whatcom County Extension website at <http://whatcom.wsu.edu/ag/aminopyralid/>



Photo: WSU Extension

#### What herbicide residues were found in manure and compost?

Very low levels of herbicides have been detected in the compost. Two in particular are most likely to cause damage at these low levels—aminopyralid and clopyralid. These herbicides are used to control a broad spectrum of noxious weeds and invasive plants on rangelands and pastures, transportation right-of-ways and wildlife habitat areas. They are frequently used for weeds in pastures and grass grown for hay.

#### Why organic farmers, homeowners and small farms particularly? Don't large-scale conventional farmers face this problem?

Organic farmers, small farms and homeowners often use manure and manure composts to deliver nutrients to their plants, rather than applying synthetically produced fertilizers as do most large-scale conventional farm operations.

#### Do the herbicides pose a public health risk?

Both aminopyralid and clopyralid are classified by the U.S. Environmental Protection Agency as safe for human and livestock exposure at the low levels WSDA detected in the compost and manure. The plant damage reported in Whatcom County involves inadvertent herbicide residues in manure and compost used in vegetable gardens.

However, EPA has not tested or established tolerances for the use of these herbicides on most vegetable crops. The U.S. Food & Drug Administration prohibits the sale of any produce containing herbicide residues without an established tolerance.

Herbicides containing aminopyralid and clopyralid can be used on certain grains, grass and other feed crops. Once harvested, these commodities, and subsequent food products such as milk and meats, may legally contain residues of the herbicides.

The United Kingdom's 2008 regulatory update on aminopyralid has determined that the chemical does not pose an unreasonable risk to human or animal health or the environment when used in accordance with label directions. See the UK directorate at <http://www.pesticides.gov.uk/garden.asp?id=2480>

### **How do I clean up my garden if damaged by herbicides?**

Before planting in soil that contains dairy manure or compost, try growing a few sensitive plants in the compost to see if they are affected. To learn how to perform a bioassay, go to WSU Extension's article at <http://www.puyallup.wsu.edu/soilmgmt/Pubs/CloBioassay.pdf>

If, after doing the bioassay, you determine that your soil has been impacted by the herbicide residues, there are several ways to mitigate the problem. If it is a very small area, remove the soil and spread it on grass or pasture areas that will not be harvested as feed. For larger areas or large quantities of soil, add more soil to reduce the ratio of compost/manure to soil, reducing the exposure and concentration in the area. The soil you add will contain microorganisms which are the best avenue to break down these herbicides. The longer they have to work and the greater the number of microorganisms that are present (healthy soil) compared to the compost ratio, the faster the herbicide will break down.

Because of the short growing season in Western Washington, it's likely that if you detect residues using the home bioassay, and attempt to mitigate it using the methods above, you'll need to wait to plant your garden until the following growing season.

### **How do I avoid this happening to my garden in the future?**

If you use manure or manure-derived compost products in your garden, be diligent in asking your supplier what kinds of herbicides were used to produce feed for their animals. If they use products that contain aminopyralid or clopyralid in the production of their crops, do not buy or use their manure. Composters should consider performing bioassays as recommended by WSU Extension to assure consumers that their compost does not contain damaging levels of herbicides.

Because of the spotlight on this problem this year, many Whatcom County dairy farmers have said they will no longer use these long-lasting residual herbicides if they distribute manure off site. This should reduce potential compost problems in the future. Also, some growers are using self-contained operations, relying on compost produced from their own farm's crop wastes, rather than bringing in manure that may have suspect ingredients.

### **What role does the state Department of Agriculture play in this compost issue?**

The Washington State Department of Agriculture enforces state and federal laws and rules pertaining to the manufacture, sale, distribution, use and disposal of pesticides in Washington. WSDA is investigating complaints of damaged vegetables to determine if the problem was caused by contaminated compost.

WSDA is discussing solutions to the problem with feed and hay growers, dairy farmers, composters and other regulators. Investigations are still ongoing to determine the extent of this issue.

### **What is Ecology's role in this compost issue?**

The state Department of Ecology regulates compost in Washington. The agency's [solid waste rules](#) that contain compost standards do not address herbicide residues. However, the solid waste handling standards (WAC 173-350) are being reviewed. Ecology is accepting public comment on issue identification. For more information, contact Chery Sullivan at [chsu461@ecy.wa.gov](mailto:chsu461@ecy.wa.gov) or (360) 407-6915.

### **Website sources:**

Composting Livestock Manure, Washington State University at:  
<http://gardening.wsu.edu/stewardship/compost/manure/manure1.htm>

Fact sheet on aminopyralid, U.S. Environmental Protection Agency:  
<http://www.epa.gov/opprd001/factsheets/aminopyralid.pdf>

United Kingdom 2008 Chemical Regulation Directorate on aminopyralid:  
<http://www.pesticides.gov.uk/garden.asp?id=2480>

Dow AgroSciences: Manure Matters website: <http://www.manurematters.com>

### **Washington state regulatory contacts:**

For pesticide questions, contact the WSDA Pesticide Management Division. For information related to the current compost-related investigations, contact: **Robin Schoen-Nessa**, Washington State Department of Agriculture, Pesticide Management Division at [rschoen-nessa@agr.wa.gov](mailto:rschoen-nessa@agr.wa.gov) or (360) 902-2038.

For information from the WSDA Organic Food Program, visit the program's website [Use of compost on organic farms](#) ([http://agr.wa.gov/FoodAnimal/Organic/docs/compost\\_organic\\_farms\\_8.30.10.pdf](http://agr.wa.gov/FoodAnimal/Organic/docs/compost_organic_farms_8.30.10.pdf)) or contact **Brenda Book**, WSDA Organic Food Program, at [bbook@agr.wa.gov](mailto:bbook@agr.wa.gov) or (360) 902-2090.

For dairy manure management questions, contact **Nora Mena**, WSDA Dairy Nutrient Management Program, at [nmena@agr.wa.gov](mailto:nmena@agr.wa.gov) or (360) 902-2894.

For food safety questions, contact **Claudia Coles**, WSDA Food Safety Program, at [ccoles@agr.wa.gov](mailto:ccoles@agr.wa.gov) or (360) 902-1905.

For compost management questions in the Northwest Region, contact **Dawn Marie Maurer** at the state Department of Ecology at [dmau461@ecy.wa.gov](mailto:dmau461@ecy.wa.gov) or (425) 649-7192.